

An HCI Reading List

Andrew Sears



This is a collection of readings (e.g. books, journal articles, conference papers) various individuals have suggested as useful for people interested in HCI (originally collected as a foundation for a PhD reading list). There are comments following many of the references. These are by the individuals who contributed the reference, not by me. I accept no credit or responsibility for anything said about any of these readings.

Although this was originally collected as input when creating a PhD reading list, this is definitely *not* a PhD reading list in its current form. My original goal was to gather as much input as possible. Then, the suggestions would be filtered and missing topics/readings would be added. Since I promised to share the suggestions with everyone, I sent out a complete list. Due to the interest that was expressed in the complete list, I'm maintaining it (for the time being).

This list misses many important topics and has far too many intro-level readings for it to be considered a PhD reading list. This is not a list of recommended readings for PhD students. This is a list of readings (and comments) suggested by a large collection of people interested in HCI for other people interested in HCI. It does not cover all of the important issues and it is definitely biased toward introductory level readings.

Anyone wanting to create a PhD reading list starting from this list will need to do a lot of pruning and then add a lot of new readings on topics that are not adequately covered.

Credits

Credit for everything in here goes to the many individuals that took the time to send in their suggested readings and their comments on these readings.

Submitting References or Comments

Numerous people suggested that the list should be published and maintained. For now, I'm accepting this responsibility so if you would like to contribute a new reference or a comment about an existing reference, please feel free to forward it to me at the address below. I will add entries as they are received, and add them to the list at <http://www.depaul.edu/~asears/hci/readings.html>

I would prefer to add comments with the author's name attached (since this would certainly make the comments more useful). If you would like your name removed, please make this very clear in your email. If you do not indicate that you want your name to be removed, you will be identified as the contributor. Once again: the default is that I *will* be identifying the contributor by name.

I do not edit the references or comments I receive. I may correct or reformat submissions, but I do not edit the content. Please remember that any comments you read here have been made by an anonymous third party somewhere out there on the Internet.

Send suggestions, references, and comments to:

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Other Lists

There are many other lists out there. So many, I'm not even going to attempt to provide pointers to all of them (unless someone wants to provide me with the URLs). With that said, here are the pointers I've received.

- Gary Perlman's *Suggested Readings in Human-Computer Interaction (HCI), User Interface (UI) Development, & Human Factors (HF)* - At Gary's suggestion, the contents of his list has been integrated into the list you are currently viewing.

The Readings

ACM Press, *Resources in Human-Computer Interaction* / with an Introduction by Wendy E. Mackay, ACM, New York, NY, (1990), 1197 pages.

- *Begin your exploration with this guide to the literature.*
- *Resources in HCI contains a compilation of ACM publications relevant to HCI, including tables of contents of some ACM journals and some relevant reports from ACM computing reviews. There are several indices of this large printed resource. This resource suffers from many problems: (1) As a single printed resource, this book suffers from being immediately dated (i.e., material up to 1989). (2) As an ACM source, it has limited general use because it does not include non-ACM sources such as the journals Human-Computer Interaction, International Journal of Man-Machine Studies, Behaviour and Information Technology, etc. (3) The information in the book includes irrelevant information such as a review of an AWK user guide (perhaps because the term user is in the*

title). (4) *The information in the book can be difficult to find. Approaches to bibliographic information like Resources in HCI will eventually be displaced by online search.*

ACM SIGCHI Curriculum Development Group (1992). *ACM SIGCHI Curricula for Human Computer Interaction*. New York: ACM. ISBN 0-89791-474-0; ACM Order Number 608920. The report is available on the WWW at: <http://www.acm.org/sigchi/cdg>.

- *This report defines the field of HCI, describes four courses and full programs in HCI, and provides resources for HCI education.*

Adler, P., Winograd, T. (eds, 1992) *Usability: Turning technologies into tools*. Oxford: Oxford University Press.

- *This book, which came out of a 1990 seminar on the effects of technology on future work, contains seven chapters on usability from a work perspective. The presentation is broader than the traditional HCI notion of usability in that it entails the development of whole systems, including their effects on work and the changing work conditions. The book is very useful as an illustration of what the field of information systems development can contribute to HCI.*

Anderson, B., & Sharrock, W. (1993). Can organisations afford knowledge? *Computer Supported Cooperative Work (CSCW)*, 1, 141-161.

Andersen, P. B. (1990). *A theory of computer semiotics - Semiotic approaches to construction and assessment of computer systems*. Cambridge: Cambridge University Press.

Apple Computer. (1992) *Macintosh Human Interface Guidelines*. Reading, MA: Addison-Wesley. Available on the Web

- *There is an interactive animated companion CD-ROM to these Mac guidelines called "Making it Macintosh", Addison-Wesley, 1993. ISBN 0-201-62626-8.*
- *A good general reference on good UI design, even if you are designing for a platform other than the Mac. Good chapters on the design process, as well as on interface elements.*

- *A major expansion of the 1987 document, well written and beautifully produced color book.*

Baecker, Ronald, and Aaron Marcus, *Human Factors and Typography for More Readable Programs*, Addison Wesley Longman Publishers, 1 Jacob Way, Reading, MA, 01867, 1990, ISBN 0-201-10745-7.

- *The book summarizes two years of ARPA-funded research in how to make computer programs more legible. We show recommended improvements that, when they were tested by human factors experts, showed that novice programmers improved their reading comprehension (not just speed) by 20%. We also summarize much available knowledge about graphic design, book design, and information design in a special appendix.*

Baecker, R., ed. (1993) *Readings in Groupware and Computer-supported Cooperative Work*. San Francisco, CA: Morgan Kaufmann.

- *A very broad set of multidisciplinary readings on CSCW by a number of the pioneers in the field.*

Baecker, R., Grudin, J., Buxton, W., Greenberg, S. (eds, 1995) *Readings in human-computer interaction: Toward the year 2000*. Second edition. San Francisco: Morgan Kaufmann.

- *Excellent collection of classic papers with thoughtful introductions.*
- *A very broad set of multidisciplinary readings on HCI covering a wide range of topics from analysis to design to evaluation.*
- *An excellent collection of scientific HCI papers that, at the time of writing (March -96), feels current and relevant. The coverage of the field is very good; I particularly like that there are some hints on the relations between HCI and systems development. The editorial introductions to every part provide very useful overviews and many references beyond the readings in the book. The main drawback is that most papers are reprinted from the original sources, sometimes with fairly low print quality, which makes some of the pictures less valuable (Note from the editors of the book: A significant effort to improve the quality of reproduced figures was made*

when the book went to a second printing, following this review).

- *How to design usable systems. This delightful paper, originally written in 1988, presents many informal methods and how they are applied to the usability design process.*
- *User technology: From pointing to pondering.*
- *In Chapter 5: Brad Myers, State of the art in user interface software tools introduction to Chapter 7: Touch, Gesture, and Marking all of Chapter 8: Speech, Language, and Audition*
- *Chapter 2: Design and evaluation. This overview summarizes the fit between design and evaluation.*
- *(This comment is about the first edition) This excellent collection of 59 papers (and those in the second edition) are integrated with clear and thought-provoking prose by the editors. This excellent introduction to the field is also a great value, making it the most used university text on HCI. Detailed table of contents is available via anonymous ftp at: <ftp://archive.cis.ohio-state.edu/pub/bcibib/baeck87.bib>*
- *This new version is very different from the first and should be considered a different snapshot of the field. An excellent introduction to the field.*

Barfield, L. (1993) *The user interface: Concepts and design*. Wokingham, UK: Addison-Wesley.

- *This book is aimed at interaction designers to be, and intends to offer a suitable set of tools for thought: concepts, notations and some basic values. The structure is unusual in the sense that it starts with general design and gradually focuses on interactive computer systems, but it covers much of the contents found in conventional HCI books. The author is very good at finding examples for his ideas and writes in a readable and accessible way. I think the book would work very well in an introductory course if empirically oriented methods and exercises are addressed on the side.*

Bass, Len & Coutaz, Joelle (1991). *Developing Software for the User Interface*. Reading, MA: Addison-Wesley. ISBN 0-201-51056-4.

Bauersfeld, P (1994) *Software by Design: Creating People Friendly Software*. New York, NY: M & T Books.

- *A lively introduction to a user-centered (she calls it "user-oriented") approach to interface design. Especially well laid out for easy access to information.*
- Bentley, R., Hughes, J.A., Randall, D., Rodden, T., Sawyer, P., Shapiro, D. and Summerville, I. (1992) Ethnographically-informed systems design for air traffic control, in Proc CSCW'92, p123-129, November.
- Berry, Wendell. What Are People For?
- Bias, R.G. (1994) Chapter 3: The pluralistic usability walkthrough: Coordinated Empathies. In J. Nielsen and R. Mack (eds) Usability Inspection Methods, p63-76, Wiley and Sons.
- *Describe the steps in the pluralistic walkthrough process.*
- Bias, R., Mayhew, D. (eds, 1994) Cost-justifying usability. Boston: Academic Press.
- *This edited collection contains 14 chapters devoted to the demonstration of the importance of usability evaluation to the success of software development.*
 - *Financial justification for usability work is the topic of this collection. Several examples of cost-benefit analyses are presented, where the authors demonstrate numerous ways of calculating the costs and revenues of usability activities in systems development. There are also chapters on the economy of reuse, suggested designs for tools supporting financial analysis, and discussions of how usability work can be introduced into a development organization. The quality of the contributions is variable, but the book can nevertheless be recommended to anybody looking for arguments in favor of usability work.*
- Blomberg, J., Giacomi, J., Mosher, A., & Swenton-Wall, P. (1993). Ethnographic field methods and their relation to design. In D. Schuler & A. Namioka (Ed.), Participatory design - Principles and practices (pp. 123-155). Hillsdale, NJ: Lawrence Erlbaum Associates.
- Boff, Kenneth R. & Lincoln, Janet E. (Editors, 1988). Engineering Data Compendium: Human Perception and Performance. Wright-Patterson Air Force Base, Ohio: Harry G. Armstrong Aerospace Medical Research Laboratory, 1988.
- *This report gathers and digests thousands of studies and is a great resource for designers concerned with HP&P. It is available on CD-ROM as part of CASHE:PVS.*
- Booth, P. (1989) An introduction to human-computer interaction. London: Lawrence Erlbaum.
- *A introductory textbook covering interaction principles and techniques as well as cognitive models, usability and usability-oriented development approaches. The level of description is fairly superficial, which means that the book serves as a useful introduction but hardly as a resource for deeper studies.*
- Borenstein, N. (1991) Programming as if people mattered. Princeton: Princeton University Press.
- *This book was written by a programmer who has learnt about user interface design by making all the mistakes. It contains many amusing stories about failed designs, and there is also an excellent discussion of the conceptual differences between user-oriented design and software engineering.*
- Bowers, J. (1994) The work to make the network work: Studying CSCW in action. In Proceedings of the ACM Conference on Computer Supported Cooperative Work, p287-298, ACM Press.
- Brown, C. Marlin "Lin", Human-Computer Interface Design Guidelines, Ablex Publishing Corp., Norwood, NJ, (1988), 236 pages.
- *Readable set of guidelines with good examples and explanations.*
 - *A good source of guidelines for graphical interfaces.*
- Bush, Vannevar. "As We May Think". Originally published in Atlantic Monthly, 1945. Reprinted with permission in interactions, Volume III.2, pp. 35-46.
- Card, S., Moran, T., and Newell, A. (1980) The keystroke level model for user performance time with interactive systems. Communications of the ACM, 23(7), p396-410, ACM Press.
- *The original paper describing the model.*
- Card, S., Moran, T., Newell, A. (1983) The psychology of human-computer interaction. Hillsdale, NJ: Lawrence Erlbaum.
- *This is a milestone in psychology-based HCI. It describes a cognitive model of human expert interaction with computers and illustrates how it can be used to explain and predict behavior. Household concepts like GOMS and the keystroke level model all have their origins here.*
 - *This classic defines the early theoretical basis for HCI. It is primarily for researchers.*
- Card, S. (1996) Pioneers and settlers: Methods used in successful user interface design. In M. Rudisill, C. Lewis, P. Polson and T. McKay (eds) Human-Computer Interface Design: Success Stories, Emerging Methods, and Real-World Context, p122-169, Morgan-Kaufmann.
- *Successful systems are reconsidered against a variety of design and evaluation methods as well as real deployment requirements.*
- Carroll, J. M. (1982). The adventure of getting to know a computer. IEEE Computer, 15(11), 49-58.
- Carroll, J. M. (1990). The Nurnberg Funnel: Designing Minimalist Instruction for Practical Computer Skill. Cambridge, MA: MIT Press.
- Casey, S. (1993) Set phasers on stun – And other true tales of design, technology and human error. Santa Barbara: Aegean Publishing Company.
- *The author, an experienced human factors consultant, has collected 18 true stories about the sometimes horrible effects of human-technology misfit. Some of the stories are about computer systems, whereas others address aircraft, buildings and medical technology. The stories are written in a readable, journalistic style and make very good material for anybody who wants to make the case that HCI is important.*
- Chapanis, Alphonse, The business case for human factors in informatics, In Shackel, Brian and Richardson, Simon (Editors), Human Factors in Informatics Usability, Cambridge University Press (1991), 39-71.

Chapanis, Alphonse and Budurka, William J., Specifying human-computer interface requirements, Behaviour and Information Technology 9, 6 (1990), 479D492.

Chin, John P., Diehl, Virginia A., and Norman, Kent L., Development of an instrument measuring user satisfaction of the human-computer interface, Proc. CHI'88-Human Factors in Computing Systems, ACM, New York (1988), 213-218.

Clement, A. (1991). Designing without designers - More hidden skill in office computerization? In I. V. Eriksson, B. A. Kitchenham, & K. G. Tijdens (Eds.), Women, work and computerisation - Understanding and overcoming bias in work and education. In Fourth IFIP TC9/WG9.1 conference on Women, Work and Computerisation, Helsinki (pp. 15-32). Amsterdam: Elsevier.

Collins, D. (1995) Designing object-oriented user interfaces. Redwood City, CA: Benjamin Cummings.

- *There is currently a lot of talk about the need to integrate HCI with systems development and software engineering, but this is one of the first books to give it an honest try. The author rightly points out that object-oriented development models are very suitable for the analysis and construction of object-oriented user interfaces. He covers basic HCI knowledge, some systems analysis and a fair amount of user interface programming (in Smalltalk and C++). The listing and discussion of different classes of metaphors for object-oriented user interface is a particularly interesting feature. To be useful in teaching and practice, this book should be complemented with some literature on usability-oriented methods, and specifically usability evaluation.*

Commodore-Amiga, Inc. (1991). Amiga User Interface Style Guide. Reading, Mass.: Addison-Wesley. ISBN 0-201-57757-7.

Cook, S. D. N., & Brown, J. S. (1996). Bridging epistemologies - The generative dance between organizational knowledge and organizational knowing. Draft, January 1996, San Jose State University and Xerox PARC, CA.

Cooper, A. (1995) About face: The essentials of user interface design. Foster City, CA: IDG Books Worldwide.

- *This is an exhaustive discussion of graphical user-interface design, particularly oriented towards Windows. The author starts from a work-oriented perspective on computer use and demonstrates how a graphical user-interface can be designed to support productivity and learning on different levels. Interaction techniques and widgets are dealt with in detail and the vocabulary introduced by the author should be very useful. There are also some significant ideas of wider scope, such as re-designing file systems, using animation in the interface, and endowing programs with memory. The writing style is easy-going and sometimes a bit colloquial, but the book is very accessible and generously illustrated. The author consistently writes as a designer rather than a usability expert, something that is sorely needed in the HCI field. On the whole, the book should be very valuable for interaction designers who need to build up their graphical user-interface repertoire.*

Cox, K., Walker, D. (1993) User-interface design. Second edition. New York: Prentice Hall.

- *This is an introductory textbook for practically oriented HCI courses. It is firmly based in a systems development perspective and covers topics such as usability testing, dialogue design and user documentation. Each chapter has a rich set of exercises, some of which are very good.*

Coyne, Richard. Designing Information Technology in the Postmodern Age

Csikszentmihalyi, M., & Csikszentmihalyi, I. S. (1988). Optimal experience: psychological studies of flow in consciousness. New York: Cambridge University Press.

Curtis, Bill, IEEE Software, Defining a place for interface engineering (March 1992), 84-86.

delGaldo, E. & Nielsen, J. (1996) International User Interface Design. New York: John Wiley & Sons.

- *Highly recommended collection of information about how to design for global*

users from a number of the leading people in the area.

Dennett, Daniel. Consciousness Explained

Diaper, D. (1990) Task analysis for human-computer interaction. Chichester: Ellis Horwood.

- *This is a good example of the formal task analysis tradition within HCI. The techniques presented in the book are accessible and presumably useful, if they are combined with a more comprehensive systems development model.*

diSessa, A. A. (1986). Notes on the future of programming: Breaking the utility barrier. In S. W. Draper & D. A. Norman (Eds.) User Centered System Design: New Perspectives on Human-Computer Interaction. Hillsdale, NJ: Lawrence Erlbaum Associates.

Dix, A., Finlay, J., Abowd, G., Beale, R. (1993) Human-computer interaction. New York: Prentice Hall.

- *Chapter 11 briefly surveys a variety of methodologies, and is a useful overview.*
- *An ambitious attempt to write a comprehensive textbook, starting with discussions of humans, computers and interaction from an HCI perspective. It moves on to nine chapters on different aspects of the usability-oriented development process and closes with a number of advanced topics (multimedia, CSCW, etc). On the whole a useful book, but I find it incoherent in places. Also, I personally think that the authors overestimate the role and value of formal methods.*
- *This is a broad introduction to HCI, including a clear statement of a user interface development process. It should be useful to researchers in training and practitioners.*

Downton, A. (ed, 1991) Engineering the human-computer interface. Maidenhead: McGraw-Hill.

- *Being a collection of chapters written by British HCI experts, it obviously lacks the coherence of a regular textbook. On the other hand, the scope and coverage is considerable. For example, there are chapters of applied psychological research and knowledge analysis that would not be expected in a textbook. The core areas of HCI are also covered decently.*

Appended are two very detailed case studies of usability evaluations, something that an interested student may find very useful.

Dray, S. (1995) The importance of designing usable systems. *interactions*, 2(1), 17-20, January, 1995.

- *The first Business column of _interactions_ magazine with clear explanations of why it is important to design for usability, aimed for use with managers.*

Dumas, J., Redish, J. (1993) A practical guide to usability testing. Norwood, NJ: Ablex.

- *This step-by-step guide provides checklists and offers insights for every stage of usability testing.*
- *You wouldn't believe that there is so much to know about usability testing. The authors use 24 chapters and close to 400 pages to discuss what usability is, how to plan and perform an evaluation and how to use the results most efficiently. The book is full of practical hints and the authors share generously of their experience in the field. I think that the book will be extremely useful to the reader who has understood the purpose and ideas of usability work and is about to get started. However, it is hardly usable as a standalone textbook since it does not cover the alternatives to usability testing.*

Eason, K. (1988). Information technology and organisational change. London: Taylor and Francis.

Eberts, R.E. (1994) Extracts from User Interface Design, Prentice Hall.

- *A general and high level introduction to experimental design. Extracts are: Chapter 4: Experimental methodology; Chapter 5: Experimental designs and analysis; Chapter 6: Hazards to conducting and interpreting HCI experiments*

Ehn, P. (1989). Work oriented design of computer artefacts. Hillsdale, New Jersey: Lawrence Erlbaum Associates.

Ehrlich, K., Butler, M. and Pernce, K. (1994) Getting the whole team into usability testing. *IEEE Software*, p89-90.

Endesly, M. (1995) Measurement of situation awareness in dynamic systems. *Human Factors*, 37(1), p65-84.

Fernandes, T. (1995) Global Interface Design. Boston, MA: AP Professional.

- *Excellent overview of one man's perspective on designing international user interfaces, with lots of good examples. Comes with CD-ROM with additional illustrations.*

Fetterman, D. (1989) Ethnography Step by Step. Newbury Park, CA: Sage.

- *The book to look at if you are planning to do observations. A good introduction.*

Foley, J., van Dam, A., Feiner, A. & Hughes, J. Computer Graphics, 2nd Edition Addison-Wesley, 1990.

- *Chapter 1: Introduction Chapter 8: Input devices, interaction techniques, and interaction tasks Chapter 9: Dialogue Design Chapter 10: User Interface Software*
- *The second edition of this classic contains a few chapters on input and output devices and user interface architecture.*

Fowler, S. & Stanwick, V. (1995) The GUI Style Guide. Boston, MA: Academic Press.

- *A very good adjunct to both platform guidelines and a company's internal guidelines. Cross platform examples. Each chapter includes an annotated list of additional resources. Excellent section on international software.*

Galitz, W. (1994) It's time to clean your windows. New York: John Wiley & Sons.

- *A good general introduction to UI principles. Somewhat dated, despite the revision.*

Gardiner, M., Christie, B. (eds, 1987) Applying cognitive psychology to user-interface design. Chichester: John Wiley.

- *There are numerous books on psychology and other behavioral and social sciences of relevance for HCI. When this one was written, it was distinctive in that the authors tried to focus on the relations between psychology and user interface design. The result is a survey of relevant psychological knowledge and a set of design guidelines derived from that*

knowledge. In that respect, it is similar to Mayhew (1992).

Gaver, W. W. (1991). Technology affordances. *Proceedings of the CHI 91 Conference on Computer and Human Interaction*. 1991, March. New York: ACM.

Gray, C. H. (with Heidi J. Figueroa-Sarriera & Steven Mentor) (Ed.). (1995). *The cyborg handbook*. London: Routledge.

GO Corporation (1992). *PenPoint User Interface Design Reference*. Reading, MA: Addison-Wesley. ISBN 0-201-60858-8.

Gould, John D., Boies, Stephen J., and Lewis, Clayton, Making usable, useful productivity-enhancing computer applications, *Communications of the ACM* 34, 1 (January 1991), 75-85.

Gould, J., Conti, J., and Hovanyecz, T. (1981) Composing letters with a simulated listening typewriter. In *Proceedings of the ACM Conference on Human Factors in Computing Systems*, p367-370. ACM Press.

Gould, J. D., & Lewis, C. (1987). Designing for usability: Key principles and what designers think. In R. M. Baecker & W. A. S. Buxton (Eds) *Readings in Human Computer Interaction*. San Mateo, CA: Morgan Kaufman.

Gray, W., John, B., Stuart, R, Lawrence, D. and Atwood, M. (1996) GOMS meets the phone company: Analytic modeling applied to real world problems. In R. Baecker, J. Grudin, W. Buxton and S. Greenberg (eds) *Readings in Human Computer Interaction: Towards the Year 2000*, p634-639, Morgan-Kaufmann.

- *Another case study of GOMS in use.*

Green, E., Owen, J., & Pain, D. (Ed.). (1993). *Gendered by design? Information technology and office systems*. London: Taylor and Francis.

Greenbaum, J., Kyng, M. (eds, 1991) *Design at work: Cooperative design of computer systems*. Hillsdale, NJ: Lawrence Erlbaum.

- *This is an excellent collection of practical techniques and methods within the systems development philosophy known as*

- participatory design. Considering the increasing interest in socially oriented development approaches within HCI, this book can be recommended as a resource for the practically oriented. Schuler and Namioka (1993) offers a more extensive treatment of the philosophy of participatory design and other broader issues.*
- Grudin, J. (1990). The case against user interface consistency. *Communications of the ACM*, 32, 1, 1164-1173.
- Hales, M., & O'Hara, P. (1993). Strengths and weaknesses of participation - Learning by doing in local government. In E. Green, J. Owen, & D. Pain (Eds.), *Gendered by design? Information technology and office systems. Gender and society, feminist perspectives* (pp. 153-172). London: Taylor and Francis.
- Hales, M. (1994). Where are designers? Styles of design practice, objects of design and views of users in computer supported cooperative work. In D. Rosenberg & C. Hutchison (Eds.), *Design issues in CSCW* (pp. 151-177 (bibliography, 293-307)). London: Springer Verlag.
- Hales, M. (1996). Doing cultural work and rolling out standard software in a software engineering company. *Software cultures - Work environments for design and development*, COST A4 workshop, Technische Universitat Wien, 7-9 November 1996. Abteilung fur CSCW, Argentinierstrasse 8, Vienna, pp. 37-74.
- Harrison, B. and Baecker, R. (1992) Designing video annotation and analysis systems, *Graphics Interface*, p157-166, Morgan-Kaufmann.
- Hartson, H. Rex and Hix, Deborah (Editors), *Advances in Human-Computer Interaction: Volumes 1-4*.
- Helander, M. (Ed, 1988). *Handbook of Human-Computer Interaction*. Amsterdam: Elsevier Science.
- *This is a voluminous collection of articles addressing various aspects of HCI. It contains a total of 52 chapters, written by renowned experts in the respective fields and covering everything from input/output devices to psychosocial and work-related issues. The book is a very useful reference source but probably not something that you would read from front to back.*
 - *This collection of 52 survey papers contains excellent reference material for both researchers and practitioners. The 1991 softcover edition is reasonably affordable. A new edition is being developed. Detailed table of contents is available via anonymous ftp at: ftp://archive.cis.ohio-state.edu/pub/hcibib/helander.bib.*
- Hewlett-Packard, IBM, Sunsoft Inc. & USL (1993). *Common Desktop Environment: Functional Specification (Preliminary Draft)*. X/Open Company Ltd. ISBN 1-85912-001-6. Available via anonymous ftp at: ftp://XOPEN.CO.UK/pub/cdespec1/cde1_ps.Z.
- Hix, D., Hartson, H. (1993) *Developing user interfaces. Ensuring usability through product and process*. New York: John Wiley & Sons.
- *Practical approach with current techniques.*
 - *Most textbooks in the field are focused either on design guidelines or on development processes. The authors of this book attempt to cover both. The first part is a good summary of design primitives on different levels, together with rules for their use. The second part covers a usability engineering approach. A common example is used throughout the second part, and practical notations for design and evaluation are introduced. In my opinion, the book as a whole is useful for teaching and for practical use.*
 - *This book generated a lot of positive reviews when it came out. The authors present a methodology for developing user interfaces, including their User Action Notation (UAN) for representing interaction between the user and the system.*
- Holtzblatt, K. and Beyer, H. (1993) *Contextual Design: Principles and Practice*. In D. Wixon and J. Ramey (eds) *Field Methods Casebook for Software Design*, p303-333.
- Holtzblatt, K. and Jones, S. (1996) *Contextual Inquiry: A Participatory Approach*. In D. Schuler and A. Namioka (eds) *Participatory Design: Principles and Practices*, p177-210.
- *Describes contextual inquiry*
- Horton, W. K., (1990) *Designing and Writing Online Documentation*. John Wiley: New York.
- *Guidelines for just that, from messages and menus to help screens and bibliographic databases*
- Horton, W. (1994) *The Icon Book*. New York: John Wiley & Sons.
- *Highly recommended. Includes information about how to design icons along with lots of excellent examples. Comes with Windows disk of icons (copyrighted, unfortunately)*
- Howes, A. & Payne, S. J. (1990). Supporting exploratory learning. In D. Diaper, et al. (Eds.) *Human Computer Interaction - INTERACT '90*. North-Holland: Elsevier.
- Hutchins, E. L., Hollan, J. D., & Norman, D. A. (1986). Direct manipulation interfaces. In S. W. Draper & D. A. Norman (Eds.) *User Centered System Design: New Perspectives on Human-Computer Interaction*. Hillsdale, NJ: Lawrence Erlbaum Associates.
- Hughes, J., King, V., Rodden, T. and Andersen, H. (1994) Moving out of the control room: Ethnography in system design. In *Proc CSCW'94*, p429-439, ACM Press.
- Hutchins, E. (1991). The social organization of distributed cognition. In L. Resnik (Ed.), *Perspectives on socially shared cognition* (pp. 283-307). Washington DC: American Psychological Association.
- IBM (1992). *Object-Oriented Interface Design: IBM Common User Access Guidelines*. Carmel, Indiana: Que. ISBN 1-56529-170-0.
- Incontext, Inc. *Getting Started with Contextual Techniques*. <http://www.incent.com/connection.indx/techniques.html>
- ISO 9241 Part 1-17: *Ergonomic requirements for office work with visual display terminals*.
- *Important guidelines for how-to and how-not-to make things work. Sure you know this.*
- Jeffries, R., Miller, J., Wharton, C. and Uyeda, K. (1991) *User interface evaluation in the real world: A comparison of*

four techniques. In ACM Conference on Human Factors in Computing Systems. p119-124, ACM Press.

Jirotko, M., Gilbert, N., & Luff, P. (1992). On the social organisation of organisations. Computer Supported Cooperative Work (CSCW), 1, 95-118.

Jirotko, M., Goguen, P. (eds, 1994) Requirements engineering – Social and technical issues. London: Academic Press.

- *Understanding user requirements is obviously a crucial prerequisite for building the right system, and not merely building the system right. That is why requirements engineering is important for HCI. This book contains articles on social as well as technical aspects of requirements work which makes it a valuable addition to the literature within software engineering, where social issues are sometimes overlooked. The book plays an important part in the increasing integration between technologists and social scientists.*

Kiesler, S., ed. (1997) Culture of the Internet. Mahwah, NJ: Lawrence Erlbaum.

- *A compendium of essays and research reports on the social and cultural processes of electronic communication.*

John, B. and Vera, A. (1996) A GOMS analysis of a graphic machine-paced, highly-interactive task. In R. Baecker, J. Grudin, W. Buxton and S. Greenberg (eds) Readings in Human Computer Interaction: Towards the Year 2000, p626-633, Morgan-Kaufmann.

- *A case study of GOMS in use.*

Kantowitz, Barry H. & Sorkin, Robert D. (1983). Human Factors: Understanding People-System Relationships. New York, NY: John Wiley & Sons. ISBN 0-471-09594-X.

- *A good HF text, but from 1983.*

Karat, Claire-Marie, Cost-benefit analysis of usability engineering techniques, Proceedings of the Human Factors Society Annual Meeting, (1990), 839-843.

Karat, C., Campbell, R. and Fiegel, T. (1992) Comparison of empirical testing and walkthrough methods in user interface evaluation. In ACM Conference on

Human Factors in Computing Systems. 397-4044, ACM Press.

Keiras, D. E., & Bovair, S. (1983). The role of a mental model in learning to operate a device. ONR Technical Report No. 13.

Klemmer, Edmund T. (Editor), Ergonomics: Harness the Power of Human Factors in Your Business, Ablex, Norwood, NJ (1989).

Kyng, M. (1995). Making representations work. Communications of the ACM, 38(9), 46-55.

Landauer, T. (1991) Lets Get Real: A Position Paper on the Role of Cognitive Psychology in the Design of Humanly Useful and Usable Systems, In J. Carroll (ed) Designing Interaction, Cambridge University Press.

Landauer, Landauer, Thomas K., The Trouble with Computers: Usefulness, Usability, and Productivity, MIT Press, Cambridge, MA (1995), 425 pages.

- *The first part of the book describes the productivity paradox of IT, i.e., the disturbing observation that the use of computers does not boost industrial productivity to the levels one might have expected. The author's suggested cure is user-centered systems development, aiming at achieving usefulness and usability. The logic is obviously not conclusive but the book can still be seen as a very well-written motivation for HCI and usability-oriented work. The author's descriptions of development methods and approaches are very good, particularly the pieces that address how to deal with different kinds of evaluation data.*

Lansdale, M., Ormerod, T. (1994) Understanding interfaces: A handbook of human-computer dialogue. London: Academic Press.

- *As the title suggests, the authors work from the perspective of human-computer interaction as dialogue. They address what human capabilities are needed and used in the dialogue with the computer, what properties the computer must have, different dialogue styles etc. The whole book is based in psychology and demonstrates in a useful way what applied psychology in HCI can be about. Unfortunately, the concluding part of the book addresses design and evaluation*

in a superficial and not very convincing way. The most obvious problems are that the discussion is limited to the user interface and not relevant for practical and professional contexts.

Larkin, J. H. (1987). Display-based problem solving. In D. Klahr & K. Kotovsky (Eds.), Complex information processing: The impact of Herbert Simon. 319-341. Hillsdale, NJ: Lawrence Erlbaum Associates, Inc.

- *Explains in psychological terms why external displays are important for problem solving. (Frank Ritter, University of Nottingham)*

Laurel, B. (ed, 1990) The art of human-computer interface design. Reading, Mass.: Addison-Wesley.

- *A collection of articles by different authors that makes up one of the first examples of a design perspective on HCI. The book has recommendations and reflections on how to deal with the design process, along with visionary statements and many examples of interaction design that was pretty innovative when the book came out. Generally stimulating reading, and a valuable complement to the more analytical and evaluation-oriented HCI literature.*
- *This is a popular collection of inspiring readings on design.*

Laurel, B. (1990). The Art of Human-Computer Interface Design. Reading, MA: Addison-Wesley.

- *A lively collection of essays assembled in close collaboration with Apple.*

Laurel, B. (1991). Computers as Theatre. Reading, MA: Addison-Wesley.

Laurel, B. (1993) Computers as theatre. Wokingham, UK: Addison-Wesley.

- *The basic assumption of this book is that the notions of user interface and computers-as-tools is unnecessarily limiting. Instead, we should think of computers as arenas for human activity. Based on dramatic theory, the author develops a number of design principles that mainly address communication, agents and use experience. The book is highly relevant for readers who want to think about virtual realities and other new directions in human-computer interaction. However, it is obviously hard to apply the new*

ideas to contemporary (tool-oriented) computing: the examples presented by the author mainly address computer games and some information presentation.

Lewis, C., Ricman, J. (1993) Task-centered user interface design – A practical introduction. Shareware book, available by anonymous ftp from ftp.cs.colorado.edu (See links below).

- *A very useful and readable introductory text which covers many important topics within the framework of practically applicable design techniques. The treatment of theory-based evaluation, for instance, is very good and hard to find in other books. There is also an interesting discussion of US copyright legislation and its implications for user interface design.*
- *This is the first shareware book on UI design, and more importantly, it is a good practical guide to UI design and evaluation, making it a good choice for a supplementary text for software engineering courses. Text is available via anonymous ftp at: ftp://ftp.cs.colorado.edu/pub/cs/distrib/clewis/HCI-Design-Book/, with a simple front-end on the World-Wide Web: http://www.acm.org/~perlman/uideign.html.*

Lindgaard, G. (1994) Usability testing and system evaluation. London: Chapman & Hall.

- *In spite of the title, this book offers a fairly broad presentation of empirical data collection and analysis in general. Most of the techniques are focused on usability data, but there are also discussions of interviews and questionnaires to use in early phases of systems development. It may be interesting for HCI people with a technical background that the author describes formal (psychological) experimental methods in an accessible and useful way. On the whole, the book feels more like a reference than a textbook, even though it appears to have been written with a pedagogical intention.*

Löwgren, J. (1993) Human-computer interaction – What every system developer should know. Lund: Studentlitteratur.

- *This is a superficial introduction to HCI from a development process perspective.*

A basic discussion of individual and organizational user traits is followed by chapters on usability specification and evaluation, design, prototyping and implementation. The book is written as a dialogue between a teacher and a student, a style that some readers appreciate and others find irritating.

Kennedy, S. Using video in the BNR usability lab, SIGCHI Bulletin, 21(2), p92-95, ACM Press.

Kieras, D. (1988) Towards a practical GOMS Model methodology for user interface design. In M. Helander (ed.) Handbook of Human-Computer Interaction, Elsevier, North-Holland.

Mack, R. and Nielsen, J. (1994) Chapter 1: Executive summary. In J. Nielsen and R. Mack (eds) Usability Inspection Methods, p1-23, Wiley and Sons.

- *An executive summary and discussion of inspection methods.*

Nielsen, J. (Editor), Advances in Human-Computer Interaction: Volume 5 (1995). Ablex Publishing Corporation, Norwood, NJ

- *Overviews of research areas in this series of books.*

Mackenzie, I.S. (1996) Movement time prediction in human computer interaction. In R. Baecker, J. Grudin, W. Buxton and S. Greenberg (eds) Readings in Human Computer Interaction: Towards the Year 2000, p483-493, Morgan-Kaufmann.

Malone, T. W. (1981). Towards a theory of intrinsically motivating instruction. Cognitive Science, 5, 333-370.

Mandel, T. (1997). The Elements of User Interface Design

- *Very current and comprehensive.*

Mantei, Marilyn and Teorey, Toby, Cost-benefit analysis for incorporating human factors in the software life cycle, Communications of the ACM 31, 4 (1988), 428-439.

Marcus, A. (1992). Graphic design for electronic documents and user interfaces. New York: ACM Press.

- *This book contains many examples and includes a comparative study of graphical user interfaces on different platforms.*

• *The book, which introduces and summarizes information-oriented graphic design, contains essential contents about typography, layout, color, sign/symbol design, and user interface design, as well as extensive annotated bibliographies about these subjects. The book is available in Japanese, also.*

- *Best review of practical issues of graphic design for user interfaces.*
- *With the growth of graphical user interfaces, graphic design has become increasingly important in HCI. This book covers basic principles and techniques for graphic design in the context of user interfaces, including topics such as layout, typography, symbols and color. There is also a comparative analysis of five of the most popular graphical user interface environments.*

Marcus, A., Smilonich, N. & Thompson, L. (1995) The Cross-GUI Handbook. Reading, MA: Addison-Wesley.

- *The book uniquely details, analyzes, and cross-compares all the components of most of the major graphical user interfaces, such as Macintosh, Windows, and Motif. The book is written from the user interface design, not the programming perspective.*
- *A complete compendium of the look-and-feel of Microsoft Windows (not '95), Presentation Manager, Macintosh, Motif, and NeXTSTEP. Includes the elements and "widgets" for each environment, with lots of examples.*

Martin, James, Kavanagh Chapman, Kathleen & Leben, Joe (1991). Systems Application Architecture: Common User Access. Englewood Cliffs, NJ: Prentice-Hall. ISBN 0-13-785023-9.

Mayhew, D. (1992) Principles and guidelines in software user interface design. Englewood Cliffs, NJ: Prentice Hall.

- *This is an excellent practical guide for effective design.*
- *Fine overview of the field.*
- *The author does a very good job of demonstrating the relations between psychological HCI research and practical design guidelines. The research survey has an impressive coverage and the presentation works well. The reader can choose to trust the guidelines and apply them directly, or easily find the background and rationale for specific design*

- rules. In that sense, the book is similar to Gardiner and Christie (1987) but it is much more current in its coverage of modern interaction techniques such as direct manipulation. The contents are organized around different interaction techniques and facilitates informed design choices based on an understanding of the users and their work. To me, the closing chapter on development methodology feels regrettably superficial and out of place, but I guess it may provide some context for the design guidelines that form the main part of the book.
- A classic. Includes a chapter on how to adapt traditional methods to include user-centered approaches. Somewhat academic. Looks dated, but information is solid.
- McGrath, J. (1996) Methodology matters: Doing research in the behavioural and social sciences. In R. Baecker, J. Grudin, W. Buxton and S. Greenberg (eds) Readings in Human Computer Interaction: Towards the Year 2000, p152-169, Morgan-Kaufmann.
- A general discussion and comparison of fundamental concepts in evaluation methods.
- Microsoft Corporation. (1992) The Windows interface: An application design guide. Redmond, WA: Microsoft Press.
- This guide addresses the old Windows 3.x interface.
 - If you are developing for Windows, look here. There will be a revised copy for Windows '95, but it is not available yet. (Also suggest you look at Fowler)
- Microsoft (1995) The Windows Interface Guidelines for Software Design. Microsoft Press. (ISBN 1-55615-679-0)
- Available on the Web
 - At last, the Windows '95 UI guidelines. Unfortunately, the book is not particularly well laid out or usable, but it does give much guidance on the new look and feel of Windows '95.
- Microsoft Corporation (Nadine Kano) (1995). Developing International Software for Windows 95 and Windows NT. Redmond, WA: Microsoft Press, 1995. ISBN 1-55615-840-8.
- Superseding: *The GUI Guide: International Terminology for the Windows Interface*. Redmond, WA: Microsoft Press, 1993. ISBN 1-55615-538-7.
- Middleton, D., & Edwards, D. (Ed.). (1990). Collective remembering. London: Sage.
- Millen, D. & Dray, S. (1997) Job Transformation in the Age of the Net. *interactions*, 4[2], 13-18, March, 1997.
- Discussion of an ethnographic study of how the Internet is changing work.
- Miller, G. a lot of people reference the paper by George A. Miller from the March 1956 "The Psychology Review" on 'The magical number seven plus or minus two: some limits on our capacity for processing information'. It was republished in some anthology (details not to hand) much later than that and so more readily available. In any event I suggest that at least a photocopy be placed in your library so that your guys can actually read the paper and not just use the number seven without seeing the real basis for that number.
- Minsky, Marvin. The Society of Mind
- Molich, R. and Nielsen, J. (1990) Improving a human-computer dialogue, *Communications of the ACM* 33(3), March, p338-348, ACM Press.
- This article lists the heuristics and presents a working example, solutions, and alternatives.
- Monk, A., Wright, P., Haber, J., Davenport, L. (1993) Improving your human-computer interface: A practical technique. Hemel Hempstead: Prentice Hall.
- This short and concise book describes a usability evaluation method called Cooperative Evaluation: basically an empirical test with representative users doing representative tasks. The data collected concern unexpected user behavior, mistakes and comments. The method is aimed at identifying major usability problems in prototypes in a cost-efficient way. The book combines rationale for the method with useful how-to information in a very good way, and also covers experimental validations of the method. All in all, I think the book should be very useful for professionals as well as for educational use.
- Moran, T., Carroll, J. (eds, 1996) Design rationale: Concepts, techniques and use. Mahwah, NJ: Lawrence Erlbaum.
- The notion of structuring and capturing design processes is attractive for many reasons, and quite a few notations and methods have been proposed. Unfortunately, it turns out that they may be hard to apply in practice, for technical as well as organizational reasons. This book provides a good overview of the most prominent approaches in the field of design rationale, how they are used and how they work individually and organizationally. About half of the chapters are written for the book and the rest are reprints of "classic" articles.
- Brad A. Myers. User Interface Software Tools, *ACM Transactions on Computer-Human Interaction*. vol. 2, no. 1, March, 1995. pp. 64-103. <ftp://reports.adm.cs.cmu.edu/ust/anon/1994/CMU-CS-94-182.ps>
- Overview and survey of tools, reprinted in lots of books.
- Brad A. Myers. Challenges of HCI Design and Implementation, *ACM Interactions*. vol. 1, no. 1. January, 1994. pp. 73-83. <ftp://reports.adm.cs.cmu.edu/ust/anon/1993/CMU-CS-93-183.ps>
- Why are user interfaces hard to design and implement?
- Brad A. Myers. A Quick History of Human Computer Interaction. To appear: *ACM interactors*. <http://www.cs.cmu.edu/~amulet/papers/uihistory.tr.html> <http://www.cs.cmu.edu/~amulet/papers/uihistory.ps>
- Brad A. Myers, Rich McDaniel, Rob Miller, Alan Ferency, Patrick Doane, Andrew Faulring, Ellen Borison, Andy Mickish, and Alex Klimovitski The Amulet Environment: New Models for Effective User Interface Software Development, To appear: *IEEE Transactions on Software Engineering*. <http://www.cs.cmu.edu/~amulet/papers/amuletca.ps> <http://www.cs.cmu.edu/~amulet/papers/amuletca.abs.html>

Brad A. Myers. Creating User Interfaces Using Programming-by-Example, Visual Programming, and Constraints, ACM Transactions on Programming Languages and Systems. vol. 12, no. 2, April, 1990. pp. 143-177.

Muller, M.J. (1991) Pictive: An exploration in participatory design. In Proceedings of the ACM Conference on Human Factors in Computing Systems, p225-231, ACM Press.

Mullet, K., Sano, D. (1995) Designing visual interfaces: Communication oriented techniques. Englewood Cliffs, NJ: Prentice Hall.

- *This is an excellent and very useful presentation of graphic design aspects of the user interface. The authors are firmly based in a view of visual design as effective communication, which means that they can easily relate the concepts and techniques they discuss to a common purpose. The book is more substantial, and possibly also more difficult, than Marcus (1992), but also much more rewarding.*

Nardi, B. (ed, 1996) Context and consciousness: Activity theory and human-computer interaction. Cambridge, Mass.: MIT Press.

- *The search for alternatives to the traditional information processing paradigm is becoming more and more apparent within the behavioral science parts of HCI. One such alternative is activity theory, a developmental framework that has been explored and refined for a long time in the former Soviet Union. This book provides a good introduction to activity theory, presents a number of case studies to illustrate how the theory may be used to study human-computer interaction in practice, and finally outlines a number of promising directions. The book as a whole is readable and quite accessible, but not superficial. Particularly interesting to me is the focus on real use situations that activity theory implies.*

Neal, L. (1989) The use of video in empirical research. SIGCHI Bulletin, 21(2), p100-101, ACM Press.

Newman, W., Lamming, M. (1995) Interactive system design. Harlow, England: Addison-Wesley.

- *Thanks to the choice of contemporary examples, this textbook for academic HCI courses has an up-to-date feel to it. It applies solid psychological theory to the context of developing interactive systems in a very good way. The presentation is coherent and there are several strong points, for instance the discussion of use-oriented requirement formulation, verification and validation in the context of specification-driven processes. Moreover, I found the chapters on designing conceptual models very clear and useful. The book covers many of the established methods and notations in usability-oriented systems development but perhaps not always to the level of detail needed for standalone use.*

NeXT Computer, Inc. (1992). NeXT-STEP User Interface Guidelines (Release 3). Reading, Mass.: Addison-Wesley Publishing.

Nielsen, J., ed. (1989) Coordinating User Interfaces for Consistency. Boston, MA: Academic Press.

- *Case studies which show how to design for consistency in the interface.*

Nielsen, Jakob, The usability engineering life cycle, IEEE Computer 25, 3 (March 1992), 12-22.

Nielsen, J. (1993) Usability engineering. San Diego: Academic Press.

- *This is a practical handbook for people who want to evaluate systems.*
- *Thorough how-to presentation.*
- *The author of this book has become known for his work on discount usability techniques. Here, he describes usability evaluation methods and some design trends with a view towards professional software production. The opening chapter, where usability work is motivated in a most convincing way, and the rich bibliography are among the most valuable parts of the book.*
- *Describes the heuristics in detail plus how and why it can be used to evaluate interfaces.*
- *Describes different styles of prototypes and how they can be used within scenarios.*

Nielsen, J., Mack, R. (eds, 1994) Usability inspection methods. New York: John Wiley & Sons.

- *This book contains chapters contributed by experts on usability inspections methods such as heuristic evaluation, cognitive walkthroughs, and others.*
- *Inspection methods refer to techniques whereby the usability of a system can be assessed without employing the future users. The best known inspection method is probably heuristic evaluation, but as this book shows, there is a wide variety of alternatives: reviews, psychological models, and so on. In addition to introducing different methods, the book offers comparative discussions of their merits and shortcomings and relations to empirical (user-based) methods.*
- *A more in depth discussion of how heuristic evaluation works and its reliability*

Nielsen, J. (1994) Enhancing the explanatory power of usability heuristics. In Proceedings of the CHI'94 Conference on Human Factors in Computing Systems, p152-158.

- *This article takes usability guidelines developed by different sources and sees which ones contribute most the the explanation of actual usability problems drawn from a database.*

Nielsen, Jakob (Ed.). Usability Laboratories. Special issue of Behaviour and Information Technology, Vol. 13, Nos. 1-2, Taylor & Francis, 1994. ISSN 0144-929X.

- *This collection of contributed papers describes thirteen usability laboratories, covering topics such as: building a usability laboratory, redesigning a usability laboratory, conducting evaluations, usability metrics, data analysis, and moving beyond the laboratory.*

Niener, Norbert. The Human Use of Human Beings

Norman, D. A. (1981). The trouble With Unix: the user interface is horrid. Datamation, November, pp 139-150.

Norman, D. A., & Draper, S. W. (1986). User-Centered System Design. Hillsdale, NJ: Lawrence Erlbaum Associates.

- *This is an early set of readings that defined the idea of designing systems for users first.*
- *In this collection, many established HCI researchers contribute their views. Even though it is starting to feel old, there is*

still a lot to be learnt. The scope of the book is considerable, with chapters covering users and their understandings of the interaction, information flow, the role of HCI in systems development and much more.

Norman, D. (1988) *The Design of Everyday Things*. New York: Basic Books. (also known as *The Psychology of Everyday Things*)

- *This is a very popular book on good (and bad) design of the devices with which we interact on a daily basis, and as such it provides insights and inspiration about how to design usable software.*
- *To me, the authority on describing what "good" design is all about. Introduces such important concepts as affordances, interlocks, the stages of action, ...*
- *A wonderful blend of levity and deep thinking, practical wisdom and thoughtful theory.*
- *Highly recommended introduction. A classic by a pioneer in the field. An often humorous account of why VCRs are so hard to program, what makes doors hard to open, etc.*
- *This is a charming book that is extremely popular among HCI teachers and students even though it does not address computers at all. Norman pulls his examples from our everyday use of technical artifacts, using phones and light switches to illustrate psychological theories of action, errors and memory. After reading the book, you typically realize that you have learnt a lot about design and users without noticing.*

Norman, D. A. (1991). *Cognitive Artifacts*. In J. M. Carroll (Ed.), *Designing interaction: Psychology at the human-computer interface* (pp. 17-38). New York: Cambridge University Press.

Norman, D. (1992) *Turn signals are the facial expressions of automobiles*. Reading, Mass: Addison-Wesley.

- *In the same spirit as *The psychology of everyday things*, Norman continues his discussion of everyday artifacts and problems in their use. Some of the chapters are more like standalone essays, for instance an interesting piece on the similarities between writing and design.*

Norman, D. A. (1993). *Things that Make Us Smart*. Reading, Massachusetts: Addison-Wesley.

- *This is a very suitable followup on the two earlier books, which were mainly critiques of inadequate design of everyday things, in that it addresses more general issues in a more profound way. Different modes of thinking, the importance of representations, the possible neutrality of technology and possible future scenarios are some of the topics covered. Even though the contents are more demanding than in the previous books, the writing style is still very accessible and enjoyable.*

Olsen, D. (1992) *User interface management systems: Models and algorithms*. San Mateo: Morgan Kaufmann.

- *A good survey about techniques for implementing UIMS's. Pretty technical.*
- *This is the place to learn about the remarkable tools for developing user interfaces.*
- *This is the first textbook solely devoted to support systems for user interface development, a field known as user interface management systems (UIMS). The author covers the classical techniques and the development of the field towards more modern ideas, such as model-based UIMS, in a very good way.*

Olson, J. and Olson, G. (1996) *The growth of cognitive modelling in human-computer interaction since GOMS*. In R. Baecker, J. Grudin, W. Buxton and S. Greenberg (eds) *Readings in Human Computer Interaction: Towards the Year 2000*, p603-625, Morgan-Kaufmann.

Olson, J. and Moran, T. (1996) *Mapping the method muddle: Guidance in using methods for user interface design*. In M. Rudisill, C. Lewis, P. Polson and T. McKay (eds) *Human-Computer Interface Design: Success Stories, Emerging Methods, and Real-World Context*, p269-300, Morgan-Kaufmann.

- *The authors associate a variety of methodological approaches to specific interface design activities.*

O'Malley, C., Draper, S. and Riley, M. (1984) *Constructive interaction: A method for studying user-computer-user interaction*. From *Proceedings of Interact '84*, p1-5.

Open Software Foundation (1993). *OSF/Motif Style Guide*. Englewood

Cliffs, NJ: Prentice Hall. ISBN 0-13-643123-2.

Orlikowski, W. J., & Yates, J. (1994). *Genre repertoire - Norms and forms for work and interaction* (Working paper No. WP #3671-94 (supercedes 3525)). Alfred P. Sloan School of Management, MIT, Cambridge, Mass., Mar 1994.

Orr, J. E. (1991). *Talking about machines - An ethnography of a modern job* (PhD thesis No. P91-00132). Xerox Corporation Palo Alto Research Centre, Dec 1991.

Ottersten, I., Goranson, H. (1993) *Objektorienterad systemutveckling med COOL-metoden [Object-oriented systems development using the COOL method]*. Lund: Studentlitteratur. In Swedish.

- *This is not really a proper HCI book, but I include it anyway because it illustrates a modern systems development method with a strong focus on usability and user needs. It is particularly interesting to note how usability issues shape the method in terms of relations between work design and user interface design, and in the project management model that tries to deal with fluctuating user requirements. The user interface design part of the method is sloppy in some minor respects, but the book still has something valuable to say about the intersection between HCI and systems development (compare Collins, 1995). Apologies to non-Swedish readers.*

Papanek, Victor. *Design for the Real World*

Payne, S.J. and Green, T.R.G. *Task-action grammars: A model of the mental representation of task languages*. *Human-Computer Interaction*, 1986. 2: p. 93-133.

- *Describes one way of viewing consistency. (Frank Ritter, University of Nottingham)*

Perlman, Gary (1989-). *The HCI Bibliography*. Columbus, Ohio: Ohio State University.

- *This collection of recommended books for user interface developers is based on searches of *The HCI Bibliography*, a free-access online bibliography on *Human-Computer Interaction*. The*

- bibliography contains the tables of contents of almost all of the books listed. See the files [abooks.bib](#) (authored books), [ebooks.bib](#) (edited books), and [reports.bib](#) (technical reports). Over 10,000 bibliographic entries on books, conference proceedings, and journal articles can be accessed electronically. Available via anonymous ftp at: <ftp://archive.cis.ohio-state.edu/pub/hcibib/> with a web page at <http://www.acm.org/~perlman/hcibib/>. Send email to: director@hcibib.org.*
- *This is an excellent resource for anyone interested in HCI.*
- Perlman, Gary (1989). User Interface Development. Graduate Curriculum Module SEI-CM-17-1.1 Pittsburgh, PA: Carnegie-Mellon University, Software Engineering Institute.
- *This module covers the issues, information sources, and methods used in the design, implementation, and evaluation of user interfaces. Full text is available via anonymous ftp at: <ftp://archive.cis.ohio-state.edu/pub/hci/SEI/>.*
- Perlman, Gary & Gasen, Jean (1993). HCI Education Survey. Columbus, Ohio: Ohio State University.
- *The HCI Education Survey contains information about programs, faculty, and courses with an emphasis on Human-Computer Interaction. Summary reports and data are available via anonymous ftp at: <ftp://archive.cis.ohio-state.edu/pub/hci/Education/>. Send email to: educhi@cis.ohio-state.edu. Available on the World-Wide Web: <http://www.acm.org/~perlman/educhi.html>.*
- Perlman, Gary, Green, Georgia K., & Wogalter, Michael S. (Eds, 1995). Human Factors Perspectives on Human-Computer Interaction: Selections from Proceedings of Human Factors and Ergonomics Society Annual Meetings 1983-1994. Santa Monica, CA: HFES. ISBN 0-945289-05-7.
- *A collection of 79 papers selected from the HFES annual meetings on the basis of a focus on HCI (particularly user interface development), importance, usefulness, and soundness of methodology. Over 3500 papers were considered, of which 150 were chosen for re-review by 50 members of the HFES Computer Systems Technical Group. The contents and indexes are browsable on the WWW at: <http://www.acm.org/~perlman/hfeshci>.*
- Perin, C. (1991). Electronic social fields in bureaucracies. *Communications of the ACM*, 34, 75-82.
- Postman, Neil. *Amusing Ourselves to Death*
- Postman, Neil. *Technopoly*
- Preece, J., Keller, L. (eds, 1990) *Human-computer interaction: Selected readings*. Hemel Hempstead: Prentice Hall.
- *A collection of scientific HCI articles that has been used in HCI courses at the Open University. The selection is generally good and covers individual psychology-based HCI very well. However, organizational aspects of HCI are generally lacking and some of the articles could have been replaced with more recent material.*
- Preece, J., Rogers, Y., Sharp, H., Benyon, D., Holland, S., Carey, T. (1994) *Human-computer interaction*. Wokingham: Addison-Wesley.
- *A readable practical thorough introduction to the topic.*
 - *This is probably the most ambitious and exhaustive HCI textbook available today. It contains more or less everything considered to belong to HCI, presented in a pedagogical format with many exercises, questions and discussion topics. I particularly like the decision by the authors to integrate computer-supported cooperative work (CSCW), multimedia and similar techniques with general HCI contexts throughout the book rather than presenting them in separate chapters. The short interviews with celebrities in the field of HCI is an amusing detail that adds a more personal feeling to the material. A downside is that the ambition to cover everything has made the authors mention a few topics without discussing them to any significant depth.*
 - *Provides an overview of previous comparative studies of evaluation methods.*
 - *Includes a working example of a GOMS analysis.*
 - *This is the latest general HCI textbook. It is the first one to contain all the pedagogical features (examples, exercises, etc.)*
- to make it good for undergraduate and graduate level use. Reviewed in SIGCHI Bulletin, 26:4, 82-84, 1994, available on the World-Wide Web at: <http://www.acm.org/~perlman/preece.html>.*
- Proctor, Robert W. & Van Zandt, Trisha (1994). *Human Factors in Simple and Complex Systems*. Boston, MA: Allyn and Bacon. ISBN 0-205-13999-X.
- *A good applied psychology book, with foundational material on methods, human information processing, and classical human factors issues (error, response compatibility, control, etc.). Chapter 20 on HCI is disappointing, with most references preceding 1988 and little material on present day issues, so look to the other chapters for useful material.*
- Randall, D. (1996) *Ethnography and Systems Development: Bounding the Intersection*. Tutorial notes presented at CSCW'96. Excerpts: Sections 3, 4, 5, 7
- Rasmussen, Pejtersen & Goodstein. *Cognitive Systems Engineering*
- Reason, James. *Human Error*
- Redmond-Pyle, D., Moore, A. (1995) *GUIDE: Graphical user interface design and evaluation: A practical process*. London: Prentice Hall.
- *A practical structured method for usability*
 - *The author presents a development process, Guide, intended for professional development of graphical user interfaces. Guide is based on established techniques for user and task analysis, usability specification, design, prototyping and evaluation. The nice thing about it is that the techniques are carefully integrated into a coherent usability engineering method, well tested and presented skillfully. The Guide method on the whole appears credible and accessible to me. Some additional advantages of the book are that it emphasizes the importance of object-centered design and of putting usability work into the bigger picture of systems development.*
- Rettig, M. (1994) *Prototyping for tiny fingers*. *Communications of the ACM*, 37(4), ACM Press.
- Rieman, J. and Lewis, C. *Getting to Know Users and their Tasks*. In R.

Baecker, J. Grudin, W. Buxton and S. Greenberg (eds) Readings in Human Computer Interaction: Towards the Year 2000, p122-127, Morgan-Kaufmann.

- *Describes task-centered system design and how tasks are used to define walk-throughs.*

Ritter, F. E., & Larkin, J. H. (1994). Using process models to summarize sequences of human actions. *Human Computer Interaction*. 9 (3&4). 345-383.

- *Describes a way to create and test process models of users using protocol data, and how these models can be used to find psychological regularities. There are further papers in that volume on how to create other types of models. (Frank Ritter, University of Nottingham)*

Rubin, J. (1994) Handbook of Usability Testing. New York: John Wiley & Sons.

- *This book contains templates for usability lifecycle documents.*
- *Complete, understandable and practical discussion of all aspects and varieties of usability testing.*
- *Highly recommended. Similar in content to Dumas & Redish, but laid out to be very accessible. Includes how to prepare for and conduct usability evaluations.*

Rubinstein, Richard & Hersch, Harry (1984). The Human Factor: Designing Computer Systems for People. Maynard, MA: Digital Press. ISBN 0-932376-44-4.

- *Although a decade old, this book still meets its billing of helping design systems for people.*

Rudd, J., Stern, K. and Isensee, S. (1996) Low vs. high fidelity prototyping debate. *Interactions* 3(1), p76-85, ACM Press.

Salvendy, Gavriel (Editor, 1987). Handbook of Human Factors. New York: John Wiley & Sons. ISBN 0-471-88015-9.

- *This excellent collection of 68 chapters (over 1800 pages) covers a wide range of human factors specialties. Detailed table of contents is available via anonymous ftp at: <ftp://archive.cis.ohio-state.edu/pub/hcibib/salvendy.bib>.*

Sanders, Mark S. & McCormick, Ernest J. McCormick (1993). Human Factors in Engineering and Design. 7th Edition. New York, NY: McGraw-Hill Book Company. ISBN 0-07-054901-X.

- *Perhaps the most popular human factors text, but with little material for user interface developers, because the covered technology is about 10 years behind the publication date.*

Schmidt, K., & Bannon, L. (1992). Taking CSCW seriously - Supporting articulation work. *Computer Supported Cooperative Work*, 1(1), 7-40.

Schuler, D., Namioka, A. (eds, 1993) Participatory design: Principles and practices. Hillsdale, NJ: Lawrence Erlbaum.

- *This is a survey of philosophies, techniques and case studies that illustrate and, to some extent, explain the growing interest in participatory design within HCI. The contributors are basically uncritical to the approach, except for the issue of how generally applicable participatory design can be said to be. Several chapters discuss the Scandinavian origins of the approach and the differences compared to the US, for instance in terms of different views on working life and co-determination.*

Shneiderman, B. (1998) Designing the user interface. Third edition. Reading, MA: Addison-Wesley. Comments about the 2nd edition:

- *Reviews critical issues, offers guidelines for designers, and suggests research directions.*
- *This book is fairly ambitious in its approach and covers large parts of the HCI area. The main emphasis, however, is on interaction principles and techniques, and on a development perspective on user interfaces. The second edition features computer-supported cooperative work (CSCW) and information retrieval, and a few good closing remarks on the social and individual implications of information technology.*
- *This is the second edition of a very popular textbook. Although it is a survey of user interface development, it can also be used as a guide for practitioners.*

Smith, S., Mosier, J. (1986) Guidelines for designing user interface software.

Report ESD-TR-86-278, Mitre Corp., Bedford, Mass.

- *This set of guidelines is widely used in military systems, but is based on mid-80s technology with little on graphical user interfaces. Tagged text and PostScript are available via anonymous ftp at: <ftp://archive.cis.ohio-state.edu/pub/hci/Guidelines/>.*
- *Guidelines for user interface design are probably not the first choice for leisure reading, but it can nevertheless be important to know what has been done. Smith and Mosier is the standard reference, compiling knowledge from hundreds of sources into 944 design rules. It is starting to suffer from its age, however: much of the material is old and modern interaction techniques such as direct manipulation are only addressed briefly.*

Solso, Robert L. & Johnson, Homer H. (1989). An Introduction to Experimental Design in Psychology: A Case Approach. Fourth Edition. New York: Harper & Row. ISBN 0-06-046436-4.

- *This little book is an excellent introduction to the logic of experimental design, confounding and controls for non-specialists.*

Spradley, J. (1979) The Ethnographic Interview. New York, NY: Harcourt Brace Jovanovich.

- *For those who want to learn more about observations, after having read Fetterman.*

Stamper, R. (1991). The semiotic framework for information systems research. In [Nissen (Ed.)], (pp. 515-).

Star, S. L. (1993). Cooperation without consensus in scientific problem solving - Dynamics of closure in open systems. In S. Easterbrook (Ed.), CSCW - Cooperation or conflict? (pp. 93-105). London: Springer-Verlag.

Star, S. L. (1995). The politics of formal representations - Wizards, gurus and organizational complexity. In S. L. Star (Ed.), Ecologies of knowledge - Work and politics in science and technology Albany NY: SUNY Press.

Star, S. L., & Griesemer, J. R. (1989). Institutional ecology, 'translations' and boundary objects - Amateurs and professionals in Berkeley's Museum of Ver-

tebrate Zoology, 1907-39. Social Studies of Science, 19, 387-420.

Strong, Gary, et al (1994). New Directions in HCI Education, Research, and Practice. Washington, DC: NSF/ARPA.

- *A report based on an NSF/ARPA workshop held in Washington, DC in February 1994. Available on the World-Wide Web: <http://www.sei.cmu.edu/arpa/hci/directions/TitlePage.html>*

Stuart, Rory. The Design of Virtual Environments. McGraw-Hill.

Suchman, L. A. (1987). Plans and situated actions: The problem of human-machine communication. New York: Cambridge University Press.

Suchman, L. and Trigg, R. (1993). Artificial intelligence as craftwork. In Chaiklin, S. and Lave, J. (Eds.), Understanding practice: Perspectives on activity and context. Learning in doing: Social, cognitive, and computational perspectives, (pp. 144-178). New York, NY: Cambridge University Press.

Suchman, L. and Trigg, R. (1996) Understanding practice: Video as a medium for reflection and design. In R. Baecker, J. Grudin, W. Buxton and S. Greenberg (eds) Readings in Human Computer Interaction: Towards the Year 2000, p233-240, Morgan-Kaufmann.

- *Describes how video records can be used for ethnographic and interaction analysis.*

Sun Microsystems, Inc. (1989). OPEN LOOK Graphical User Interface Application Style Guidelines. Reading, Mass.: Addison-Wesley. ISBN 0-201-52364-7.

Sun Microsystems, Inc. (1989). OPEN LOOK Graphical User Interface Functional Specification. Reading, Mass.: Addison-Wesley. ISBN 0-201-52365-5.

Sutcliffe, A. G., Integrating methods of human-computer interface design with structured systems development, International Journal of Man-Machine Studies 34 (1991), 631-655.

Thimbleby, H. (1990) User interface design. New York: ACM Press.

- *This is a strange mixture of design issues, formal methods, problems in computer science, interaction models and mathe-*

matics, well stirred and served with a side order of HCI. The author moves between topics that you would expect to be very far apart and shows that they are all in some way related to the interaction between human and computer.

Thomas, John C., Organizing for human factors. In Vassiliou, Y. (Editor), Human Factors in Interactive Computer Systems, Ablex, Norwood, NJ (1984), 29-46.

Thomas, P. (ed, 1995) The social and interaction dimensions of human-computer interfaces. Cambridge: Cambridge University Press.

- *There is a clear trend within HCI from classical, psychological perspectives, focusing on the interaction between one user and one computer, towards larger social and organizational contexts. This collection illustrates the trend quite well. Most of the contributions are on sociology and its possible roles within HCI: some present sociologically oriented design methods (typically based on ethnography), others are more argumentative pieces that discuss the social dimensions of HCI on the abstract level. The scope of the collection is wide, and it may seem unstructured at times, but the odds are that most readers find something of interest.*

Tognazzini, B. (1992) Tog on interface. Reading, Mass.: Addison-Wesley.

- *A collection of inspiring columns by the user interface "evangelist" of the Apple Macintosh.*
- *This book was written by one of the leading architects behind Apple's user interface design, that was popularized with the Macintosh. Tognazzini has answered reader questions for several years in Apple Direct, a magazine for developers on Apple platforms. This book is a collection of the most interesting questions and answers, together with some new material. It is a lot of fun to read, and you also learn quite a bit about user interface design.*

Tognazzini, B. (1996) Tog on software design. Reading, Mass.: Addison-Wesley.

- *This one is mostly about the Sun Starfire project (an envisionment of computer use in the year 2004), how it was developed and what we can learn from it. It*

also discusses users and usability, the role of the designer in systems development, and more. I find the parts about future computing very good: inspiring, credible and full of good values that other designers and aspiring designers can learn a lot from. It would perhaps have been better if the book had been a bit more focused, since I find some of the parts on users and use contexts to be rather sweeping and sometimes oversimplified. The style of the book is very informal and entertaining, on occasion too informal: the message disappears behind the author's presence.

Treu, S. (1994) User interface design – A structured approach. New York: Plenum.

- *This is certainly a structured approach. The author describes design as a decision function with a number of variables (knowledge of users, classes of applications, etc) that generates design solutions. Each of the parts of the function are described in detail, with lots of models, tables and causal relations. Design of adaptive systems and other interaction paradigms is covered fairly exhaustively. However, the approach is not related at all to systems development or software engineering. Even though the structured approach may be a good way to cover and tie together large quantities of relevant knowledge, it is not much fun to read.*

Treu, S. (1994) User interface evaluation – A structured approach. New York: Plenum.

- *This is the companion to the above book, and it is just as structured. Evaluation is seen as a scientific or engineering activity, aimed at assessing the efficiency of the interaction and the fit between human and computer. Numerous models and tables are presented in order to cover as much relevant knowledge as possible. The main drawbacks to me are that the author only addresses evaluation of implemented systems, and that the relations to systems development are missing here as well.*

Tufte, Edward. Envisioning Information.

U.S. Department of Defense (March 14, 1989). Military Standard: Human Engineering Design Criteria for Mili-

tary Systems, Equipment and Facilities. MIL-STD-1472D Washington, DC: U.S. Government Printing Office.

- *Section 5.15 of this standard is largely drawn from the MITRE guidelines. Macintosh HyperCard stack is available via anonymous ftp at: ftp://archive.cis.ohio-state.edu/pub/hcil/1472/. It is available on CD-ROM as part of CASHE:PVS.*

Waern, Y. (1989) Cognitive aspects of computer supported tasks. Chichester: John Wiley.

- *The book is based on cognitive psychology and the first part can be read as a primer on human cognitive and perceptual abilities. This basis is then used to discuss HCI from an outside perspective, which means that the book has a certain persistent value. Even though text editors (the white rats of HCI research!) are not very exciting in terms of interaction techniques, they give rise to pedagogically useful discussions if the intention is to illustrate the underlying theory.*

Wagner, E. (1994) System interface design – A broader perspective. Lund: Studentlitteratur.

- *This is a very ambitious book that covers a bit of everything from anthropometry and the physical function of the eye all the way up to organizational impact. The best part in my opinion is the thorough treatment of display design. Unfortunately, the title is misleading (it should rather be "Process control system interface design") and the book is full of typos and sloppy layout which can become distracting at times.*

Weiss, E. (1993) Making Computers People-Literate

- *An interesting reversal on the popularized computer literate concept. From the back cover ... "By focusing on four key areas of human-computer interaction - presentation, conversation, navigation and explanation - Weiss demonstrates how computers can be made to serve the user - not the other way around.*

Wharton, C., Rieman, J., Lewis, C. and Polson, P. (1994) Chapter 5: The cognitive walkthrough method: A practitioner's guide. In J. Nielsen and R. Mack (eds) Usability Inspection Methods, pp105-140, Wiley and Sons.

- *Describe the steps in the cognitive walkthrough process.*

Vehvilainen, M. (1986). A study circle approach as a method for women to develop their work and computer systems. Second IFIP Conference on Women, Work and Computerisation, Dublin, August 1986. pp.

Vonnigut, Kurt. Player Piano

Wall, P., & Mosher, A. (1994). Representations of work - Bringing designers and users together. In R. Trigg, S. I. Anderson, & E. Dykstra-Erickson (Ed.), PDC'94 - Proceedings of the participatory design conference (Chapel Hill, NC, 27-28 October 1994) (pp. 87-98). Palo Alto CA: Computer Professionals for Social Responsibility.

Weisbord, M. R. (1992). Discovering common ground - How future search conferences bring people together to achieve breakthrough innovation, empowerment, shared vision and collaborative action. San Francisco, CA: Berrett-Koehler.

Whiteside, John, Bennett, John, and Holtzblatt, Karen, Usability engineering: Our experience and evolution. In Helander, Martin (Editor), Handbook of Human-Computer Interaction, North-Holland, Amsterdam, The Netherlands (1988), 791-817.

Wiklund, M. (ed, 1994) Usability in practice. New York: AP Professional.

- *This collection of contributed chapters describes usability practices of 17 companies: American Airlines, Ameritech, Apple, Bellcore, Borland, Compaq, Digital, Dun & Bradstreet, Kodak, GE Information Services, GTE Labs, H-P, Lotus, Microsoft, Silicon Graphics, Thompson Consumer Electronics, and Ziff Desktop Information. It amounts to the broadest usability lab tour ever.*
- *A very valuable collection: eighteen case studies of usability work in professional practice. The settings are primarily consumer product development, software development and service delivery. All the studies are, understandably but regrettably from a knowledge transfer perspective, success stories. Some lack descriptions of preconditions, analyses of the results and the general grasp of qualitative study methodology. In spite of these shortcomings, the book should be*

required reading for anybody interested in professional HCI practice today.

Winograd, T., & Flores, F. (1986). Understanding Computers and Cognition: A New Foundation for Design. Norwood, NJ: Ablex.

Winograd, Terry. Bringing Design to Software

Winograd, T. (1995). Hiedegger and the design of computer systems. In Feenberg, A. and Hannay, A. (Eds.) Technology and the politics of knowledge, (pp. 108-127). Bloomington, IN: Indiana University Press.

Winograd, T., Bennett, J., De Young, L., and Hartfield B.(eds.) (1996) Bringing Design to Software, Addison-Wesley.

- *In recent years (1995-6), there has been a markedly growing interest in design within the HCI community. This entails looking into the design professions such as graphic and media design as well as the notion of usability-oriented systems development as a design discipline. This book contains contributions from several of the pioneers within the design school of thought. As in all collections, the quality and contents are variable but some of the chapters strike me as very valuable. I personally appreciate the short profiles that present influential designs (The Xerox Star, KidPix, the spreadsheets, etc); paradigmatic exemplars ought to be just as important for us as they are in other design disciplines.*

Wixon, D., Ramey, J. (eds, 1996) Field methods casebook for software design. New York: John Wiley & Sons.

- *The field of HCI has increasingly focused on the developers' understanding the whole situation where the system will be used. Such understanding requires field study. This book is about field study methods, and particularly qualitative methods using observation and semi-structured interviews. The book is a collection of chapters based on a CHI '95 workshop, where practitioners from different fields describe their experiences from field studies in usability-oriented systems development. Most of the chapters address contextual inquiry or some flavor of ethnographically inspired interviews. There is a lot of useful hands-on information and methodological inspi-*

ration. Some of the chapters are, of course, less valuable than others, but on the whole I think the book would be of interest for those who want to develop their field study skills.

Zetie, C. (1995) Practical user interface design: Making GUIs work. London: McGraw-Hill.

- *Already in the preface, the author explains that the book is intended for professional system developers without previous HCI knowledge but with an urge to build "extraordinary" systems. The contents are well suited for such an audience and very well presented, with many examples and practical hints. The book starts with a brief overview of psychological foundations, and then moves into metaphors and conceptual models, taskflow, dialog design, detailed user interface design and error and help messages. It is limited to business-oriented standard GUI, which means lots of forms and dialog boxes and very little true direct manipulation. This is not necessarily bad, given the intended audience. However, what I do think is bad is the absence of usability testing. A good idea might be to read Dumas and Redish (1993) as a complement.*

Journals & Conferences

ACM Transactions on human-computer interaction. New York: ACM Press, 1994-.

- *This is a fairly recently started journal, intended to be the main source of archival scientific publication in HCI. Most of the contributions will probably be fairly traditional and uncontroversial, which may be good or bad. The TOCHI, as it is called, is certainly an excellent resource for keeping up with mainstream HCI research.*

Human-computer interaction. Hillsdale: Lawrence Erlbaum, ISSN 9737-0024, 1985-.

- *A well established HCI journal with high scientific standards, focusing on*

behavioral science. Technical contributions are quite unusual.

Interacting with computers. Guildford: Butterworths, ISSN 0953-5438, 1989-.

- *This is the journal of the British Computer Society Special Interest Group for HCI. The editorial policy is to encourage interdisciplinary and applied work. Many interesting articles are published here, but the scientific standards are variable.*

interactions. New York: ACM Press, 1994-.

- *A recent magazine from ACM, similar to Byte and other more practically oriented publications but focused on HCI. The typography is quite exciting, compared to traditional scientific journals, and the contents are oriented towards user interface design and HCI in practice.*

International journal of human-computer studies. London: Academic Press, ISSN 0020-7373, 1975-.

- *IJHCS is an old journal that started in human factors and man-machine interaction but gradually moved into HCI and knowledge-based systems. It was previously called the International Journal of Man-Machine Studies, but changed its name in 1994 to reflect the new orientation. The scientific standards are quite high.*

SIGCHI Bulletin. New York: ACM Press, ISSN 0736-6906.

- *This is the newsletter of the ACM Special Interest Group for HCI, containing a pleasant mix of HCI news, conference information, and research papers. Submissions are reviewed editorially but there is no formal peer review, which means that the scientific standards of the publications are variable.*

ACM Transactions on information systems

Behaviour & Information Technology

Communications of the ACM

IEEE Computer

IEEE Software

CHI: Human factors in computing systems (CHI proceedings). New York: ACM Press, 1982-.

- *CHI is the biggest and most important conference within HCI. It is held in late April or early May every year and has consistently attracted over 2000 delegates in the recent years. It covers all aspects of HCI, from the softest user study to the hardest technology.*

HCI International: International conference on human-computer interaction. Amsterdam: Elsevier, 1988-.

- *HCI International is also very big but is considered inferior to CHI in terms of quality. There are more papers in human factors and ergonomics here than at CHI.*

INTERACT: Proceedings of the IFIP TC 13 international conference on human-computer interaction. Amsterdam: North-Holland, 1984-.

- *INTERACT is the largest European HCI conference. It has been held triannually and recently biannually (1984, 87, 90, 93, 95) in different European cities and publishes contributions within the whole HCI field. The quality of the contributions may be slightly variable at times, but is generally considered as quite good.*

UIST: Proceedings of the ACM SIGGRAPH symposium on user interface software and technology. New York: ACM Press, 1988-.

- *UIST is a fairly small symposium focused on technology for user interfaces. It is held in October or November in the US and usually attracts 2-300 delegates. The quality of the contributions was variable in the first years, but now UIST is considered a first-rate forum for technically oriented HCI research.*